UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,262	11/25/2003	Bjorn-Harald Sjogren	115719	4105

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EXAMINER
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ART UNIT	PAPER NUMBER
2168	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/720,262	SJOGREN ET AL.
	Examiner	Art Unit	
	Mahesh H. Dwivedi	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 November 2003</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-18</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>25 November 2003</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>02/2⬚/2004</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statements (IDS) submitted on 02/25/2004 and

05/10/2004 have been received, entered into the record, and considered. The

submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the

information disclosure statements are being considered by the examiner.

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference character(s) not mentioned in the

description: **"200"** in Figure 2. Corrected drawing sheets in compliance with 37

CFR 1.121(d), or amendment to the specification to add the reference

character(s) in the description in compliance with 37 CFR 1.121(b) are required

in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing

on the immediate prior version of the sheet, even if only one figure is being

amended. Each drawing sheet submitted after the filing date of an application

must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the

next Office action. The objection to the drawings will not be held in abeyance.

        The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the

description: **"319"** (Page 7, line 8). Corrected drawing sheets in compliance with

37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment

of the application. Any amended replacement drawing sheet should include all of

the figures appearing on the immediate prior version of the sheet, even if only

one figure is being amended. Each drawing sheet submitted after the filing date

of an application must be labeled in the top margin as either "Replacement

Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not

accepted by the examiner, the applicant will be notified and informed of any

required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4)

because reference characters **"310"** and **"319"** have both been used to

designate **"storage engine and runtime module"**. Corrected drawing sheets in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to

avoid abandonment of the application. Any amended replacement drawing sheet

should include all of the figures appearing on the immediate prior version of the

sheet, even if only one figure is being amended. Each drawing sheet submitted

after the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the

changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection

to the drawings will not be held in abeyance.

Specification

3.   The abstract of the disclosure is objected to because the applicant is

reminded that an abstract can be no more than 150 words long. Correction is

required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claim 8 recites the limitation **"said conceptual rules module"** in lines 31-

32. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in
>
> public use or on sale in this country, more than one year prior to the date of application for patent in
>
> the United States.

7.   Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by

Jacobs et al. (U.S. Patent 6,105,025).

8.   Regarding claims 1 and 7, **Jacobs** teaches a enforcer and method

comprising:

A) enforcing a set of constraints that governs the integrity of information stored in the database system (Coumn 7, lines 43-64);

B) said enforcer being arranged to delay constraint checks until the end of a transaction (Column 7, lines 43-64, Abstract) by creating a check stack during the course of the transaction (Coumn 9, lines 17-29, Column 10, lines 13-31); and

C) executing entries on the check stack at the end of the transaction (Coumn 7, lines 43-64, Column 10, lines 13-19, Figures 3A-3D).

The examiner notes that "enforcement of the uniqueness constraints" (Column 7, line 44) and "constraint enforcement" (Column 7, lines 47-48) are analogous to **"enforcing a set of constraints that governs the integrity of information stored in the database system"**. The examiner further notes that "enforcement may be deferred until processing is completed for either a statement or transaction" (Column 7, lines 46-47) and "constraint enforcement is deferred until the end of transaction (i.e., transaction level enforcement" (Column 7, lines 57-58) are analogous to **"said enforcer being arranged to delay constraint checks until the end of a transaction"**. The examiner further notes that "a list is generated for each uniqueness-required index for each session" (Column 9, lines 17-19) and "Uniqueness required index 308 is a B-tree structured index created on column 302N" (Column 10, lines 15-17) are analogous to **"creating a check stack during the course of the transaction"**. The examiner further notes that "enforcement may be deferred until processing is completed for either a statement or transaction" (Column 7, lines 46-47),

"constraint enforcement is deferred until the end of transaction (i.e., transaction level enforcement" (Column 7, lines 57-58), and "Examples of insert, delete, and update operations using a uniqueness-required index" (Column 10, lines 13-14) are analogous to **"executing entries on the check stack at the end of the transaction"**.

Regarding claims 2 and 14, **Jacobs** further teaches an enforcer and system comprising:

A) a stack maker module, arranged for creating and updating said check stack (Coumn 9, lines 17-29, Column 10, lines 13-31);

B) said stack maker module being operatively connected to a runtime module in the database system (Coumn 6, lines 48-51, Column 9, lines 17-29); and

C) arranged to receive data from said runtime module (Coumn 9, lines 17-29).

The examiner notes that "a list is generate for each uniqueness-required index for each session" (Column 9, lines 17-19), "insert, delete, and update operations" (Column 10, line 13), and "Uniqueness required index 308 is a B-tree structured index created on column 302N" (Column 10, lines 15-17) are analogous to **"a stack maker module, arranged for creating and updating said check stack"**. The examiner further notes that it is common knowledge that "session (i.e., a connection between the application and the database system" (Column 6, lines 50-51) and "a list is generate for each uniqueness-required index for each session" (Column 9, lines 17-19) are analogous to **"said stack maker module being operatively connected to a runtime module in**

the database system". The examiner further notes that it is common

knowledge that during a session with a database, an application program

functions to **"receive data from said runtime module".**

Regarding claims 3, 9, and 15 **Jacobs** further teaches an enforcer,

method, and system comprising:

A) an enforcer module, arranged to receive check data from the check stack

(Coumn 7, lines 1-9, 43-64);

B) to process the check data received from the check stack (Coumn 7, lines 1-9,

43-64);

C) and to provide resulting data to the runtime module (Coumn 7, lines 1-9, 43-

64).

The examiner further notes that it common knowledge that during a

session, information and data is exchanged between application and database

programs.

Regarding claims 4 and 16, **Jacobs** further teaches an enforcer and

system comprising:

A) wherein said constraints are stored in a conceptual rules module, comprising

rules for prescribing permitted states and transitions that the database can

undertake (Coumn 2, lines 65-67-Column 3, lines 1-16, Column 7, lines 43-64);

B) said conceptual rules module being operatively connected to said stack

maker module (Coumn 9, lines 17-29, Column 10, lines 13-31);

C) wherein said stack maker module is arranged to retrieve constraints from said conceptual rules module (Coumn 9, lines 17-29, Column 10, lines 13-31).

The examiner notes that "uniqueness constraints" (Column 3, line 4) are analogous to **"wherein said constraints are stored in a conceptual rules module, comprising rules for prescribing permitted states and transitions that the database can undertake"**. The examiner further notes that it common knowledge that during a session, information and data is exchanged between application and database programs.

Regarding claims 5, 11, and 17, **Jacobs** further teaches an enforcer, method, and system comprising:

A) wherein said check stack is stored on persistent or volatile memory (Coumn 10, lines 13-31).

The examiner notes that it is common knowledge that tables and other information devices are stored in volatile memory in databases.

Regarding claims 6, 12, and 18, **Jacobs** further teaches an enforcer, method, and system comprising:

A) wherein said stack maker module is further arranged to handle a modify operator as a delete operator followed by an insert operator (Coumn 10, lines 11-19, 34-36, Column 11, lines 22-30, 37-65, Figures 3A-3C).

The examiner notes that it is common knowledge that "Examples of insert, delete, and update operations using a uniqueness-required index" (Column 10,

lines 13-14), "insert operations have been performed" (Column 10, lines 34-36), and "delete operation" (Column 11, line 22) are analogous to "wherein said stack maker module is further arranged to handle a modify operator as a delete operator followed by an insert operator".

Regarding claim 8, **Jacobs** further teaches a method comprising:

A) performed by a stack maker module operatively connected to said conceptual rules module and to a runtime module in said database system (Coumn 6, lines 48-51, Column 9, lines 17-29);

B) receiving data from said runtime module (Coumn 9, lines 17-29); and

C) creating and updating said check stack (Coumn 9, lines 17-29, Column 10, lines 13-31).

The examiner notes that "session (i.e., a connection between the application and the database system" (Column 6, lines 50-51) and "a list is generate for each uniqueness-required index for each session" (Column 9, lines 17-19) are analogous to **"performed by a stack maker module operatively connected to said conceptual rules module and to a runtime module in said database system"**. The examiner further notes that it is common knowledge that during a session with a database, an application program functions to **"receive data from said runtime module"**. The examiner further notes that "a list is generate for each uniqueness-required index for each session" (Column 9, lines 17-19), "insert, delete, and update operations" (Column 10, line 13), and "Uniqueness required index 308 is a B-tree structured index created on column

302N" (Column 10, lines 15-17) are analogous to **"creating and updating said check stack"**.

Regarding claim 10, **Jacobs** further teaches a method comprising:

A) wherein said constraints are stored in a conceptual rules module, comprising rules for prescribing permitted states and transitions that the database can undertake (Coumn 2, lines 65-67-Column 3, lines 1-16, Column 7, lines 43-64), further comprising the step of:

B) retrieving by said stack maker module constraints from said conceptual rules module (Coumn 9, lines 17-29, Column 10, lines 13-31).

The examiner notes that "uniqueness constraints" (Column 3, line 4) are analogous to **"wherein said constraints are stored in a conceptual rules module, comprising rules for prescribing permitted states and transitions that the database can undertake"**. The examiner further notes that it common knowledge that during a session, information and data is exchanged between application and database programs.

Regarding claim 13, **Jacobs** teaches a system comprising:

A) an application program interface, providing a two-way message interface to a user application program (Coumn 6, lines 48-51);

B) a runtime module, operatively connected to the application program interface (Coumn 6, lines 48-51);

C) a storage engine module, operatively connected to the runtime module

(Coumn 16, lines 51-53, Figure 6);

D) a data storage, operatively connected to the storage engine module (Coumn

16, lines 51-53, Figure 6); and

E) a transaction based constraint enforcer, for enforcing a set of constraints that

governs the integrity of information stored in the database system (Column 7,

lines 43-64);

F) said enforcer being arranged to delay constraint checks until the end of a

transaction (Column 7, lines 43-64, Abstract) by creating a check stack during

the course of the transaction (Coumn 10, lines 13-31); and

G) executing entries on the check stack at the end of the transaction (Coumn 7,

lines 43-64).

The examiner notes that "session (i.e., a connection between the

application and the database system" (Column 6, lines 50-51) and "a list is

generate for each uniqueness-required index for each session" (Column 9, lines

17-19) are analogous to **"an application program interface, providing a two-**

way message interface to a user application program". The examiner further

notes that it is common knowledge that a database has a **"runtime module"**.

The examiner further notes that "main memory 615 and mass storage 612"

(Column 16, lines 52-53, Figure 6) is analogous to **"a storage engine module"**

and **"a data storage"**. The examiner further notes that "enforcement of the

uniqueness constraints" (Column 7, line 44) and "constraint enforcement"

(Column 7, lines 47-48) are analogous to **"enforcing a set of constraints that**

governs the integrity of information stored in the database system". The examiner further notes that "enforcement may be deferred until processing is completed for either a statement or transaction" (Column 7, lines 46-47) and "constraint enforcement is deferred until the end of transaction (i.e., transaction level enforcement" (Column 7, lines 57-58) are analogous to **"said enforcer being arranged to delay constraint checks until the end of a transaction".** The examiner further notes that "a list is generated for each uniqueness-required index for each session" (Column 9, lines 17-19) and "Uniqueness required index 308 is a B-tree structured index created on column 302N" (Column 10, lines 15-17) are analogous to **"creating a check stack during the course of the transaction".** The examiner further notes that "enforcement may be deferred until processing is completed for either a statement or transaction" (Column 7, lines 46-47), "constraint enforcement is deferred until the end of transaction (i.e., transaction level enforcement" (Column 7, lines 57-58), and "Examples of insert, delete, and update operations using a uniqueness-required index" (Column 10, lines 13-14) are analogous to **"executing entries on the check stack at the end of the transaction".**

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,706,494 issued to **Cochrane et al.** on 06 January 1998.

The subject matter disclosed therein is pertinent to that of claims 1-18 (e.g.,

methods issue and enforce constraints on database systems).

U.S. Patent 6,453,314 issued to **Chan et al.** on 17 September 2002. The

subject matter disclosed therein is pertinent to that of claims 1-18 (e.g., methods

issue and enforce constraints on database systems).

U.S. Patent 5,408,657 issued to **Bigelow et al.** on 18 April 1995. The

subject matter disclosed therein is pertinent to that of claims 1-18 (e.g., methods

issue and enforce constraints on database systems).

Contact Information

10.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Mahesh Dwivedi whose telephone number is

(571) 272-2731. The examiner can normally be reached on Monday to Friday

8:20 am – 4:40 pm.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Tim Vo can be reached (571) 272-3642. The fax number

for the organization where this application or proceeding is assigned is (571)

273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

Mahesh Dwivedi

Patent Examiner

Art Unit 2168

April 27, 2006

Leslie Wong

Primary Examiner